Stat 305
Spring 2013

1. Class meets MWF, 9:00 - 9:50. Location TBA.

2. Labs: Lab times and locations depend on the section for which you registered..

3. Text: Biostatistics: A Methodology for the Health Sciences; van Belle, Fisher, Heagerty, and Lumey. 2nd edition.

4. Professor: E. Neely Atkinson

   - office: DH 2099
   - office hours: MWF 2-3 PM and by appointment
   - email: enatk@rice.edu

5. Grading. Your final grade will be based on homework (10%) and tests (90%). There will be (approximately) weekly homework and lab assignments. There will be two tests and a comprehensive final.

   The final will have two sections, corresponding to the material covered in each of the two previous tests. If you score higher on the section of the final corresponding to a previous test, your score on that section of the final will replace your score for that test. If you are happy with your test scores during the semester, the final is optional.

   There will generally be a homework assignment each week in which class meets. The homework assignments will be posted to Olspace. I will try to remember to repeat the assignment in class, but even if I forget, the assignment is still due, so be sure to watch Owlspace. Late submissions will not be accepted. Homework should be submitted electronically as a single file. The purpose of homework is to learn and practice the material covered in lectures and the text. You may use whatever resources you find helpful to work the assignments, including other students and the Web. However, you must turn in your own work. submissions which are copies of another student's work will be considered a violation of the Honor Code.

6. Software. We will use the R programming language language for class. No prior knowledge of R is expected. R will be available in the labs. You may also download and install R for free on your personal computer; see `http://cran.r-project.org`.

7. Getting help. Class lectures will cover material in the book. There will be labs to help you learn R and to answer questions about problem solving. I will also hold regular office hours and will respond to emails.

8. Labs. There will be a weekly lab. For each lab, there will be a specific set of skills covered. Worksheets for the labs will be posted on Owlspace. Labs will not be graded. Their purpose is to provide assistance with statistics using R. Attendance will not be taken at labs, but if you choose not to attend be sure to work through the lab worksheet; there is information covered in the labs that will not be covered in lectures but will be on the exams.

9. Course Outline. This is my proposed schedule. It may be adjusted as various topics may go slower or quicker than I anticipate.

   (a) Week 1, 1/7 - 1/11: Chapters 1, 2, and 3. Introduction. Design of medical studies. Descriptive statistics.

   (b) Week 2, 1/14 - 1/18: Chapter 4. Statistical inference.

   (c) Week 3, 1/23 - 1/25: Chapter 4 continued. More statistical inference. (short week).

   (d) Week 4, 1/28 - 2/1: Chapter 5. One- and two- sample inference.

   (e) Week 5, 2/4 - 2/8: Chapter 6. Counting data.

   (f) Week 6, 2/11 - 2/15: Chapter 6 continued. More counting data.

   (g) Week 7, 2/18 - 2/22: Review and test.

   (h) Spring Break: 2/25 - 3/1

   (i) Week 8, 3/4 - 3/8: Chapter 7. Categorical data.

   (j) Week 9, 3/11 - 3/15: Chapter 8. Nonparametric statistics.

   (k) Week 10, 3/18 - 3/22: Chapter 9. Linear models with one predictor.

   (l) Week 11, 3/25 - 3/27: Chapter 9 continued. More linear models; still just one predictor. (short week).

   (m) Week 12, 4/1 - 4/5: Chapter 16. Survival analysis.

   (n) Week 13, 4/8 - 4/12: review and test 2.

   (o) Week 14, 4/15 - 4/19: comprehensive review for final

10. Grade scale. I guarantee the following scale; thus, if you get an 85 you are guaranteed a B. I may loosen the scale if I find it advisable.

98 - 100	A+
93 - 97	A
90 - 92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
<60	F

11. I do not take attendance in class or labs, but you are encouraged to attend both. Labs provide an excellent opportunity to obtain help with any aspect of class for which you would like some extra help. Labs will also provide instruction in the necessary computer skills.

12. If you know that you will be gone due to official school activities, contact me before your absence to make arrangements for any homework, labs, or tests during your absence.

13. If you have a disability that requires accommodation, please contact both me and Disability Support Services in Allen Center. Possible accommodations include include, but are not limited to, extra time for tests, special settings for tests, the services of a note taker, and permission to record lectures. I will treat your request as confidential and make the accommodation as confidential as is practically possible.

Purposes of class. This course is meant to give you a solid grounding in the basic principles of statistical analysis with an emphasis on biostatistics. At the end of this course:

- You will understand the basic principles which underlie all statistical analyses.
- You be be able to perform a range of basic statistical analyses.
- You will be able to understand the ideas behind more advanced analyses, even if you do not completely understand all the details of the analyses or are not able to perform them yourself.
- You will be able to consult effectively with an expert statistician if the need arises in your work for the use of advanced techniques.